

## Priority Habitat Definition Statement Lowland Dry Acid Grassland v1.2

### 1. Introduction

#### 1.1 General description

Lowland dry acid grassland typically occurs on nutrient-poor, generally free-draining soils. It includes the *Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella* (U1), *Deschampsia flexuosa* (U2), *Agrostis curtisii* (U3) and *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* (U4) National Vegetation Classification grassland plant communities. Inland vegetation, but not coastal dunes, characterised by *Carex arenaria* (*Carex arenaria* dune *Festuca ovina* sub-community (SD10b) and *Carex arenaria* - *Cornicularia aculeata* dune, *Festuca ovina* sub-community (SD11b)) is also included but is highly localised.

This HAP includes both enclosed and unenclosed acid grassland throughout the UK lowlands (normally below c. 300m). It covers all acid grassland managed in functional enclosures; swards in old and non-functional enclosures in the upland fringes, which are managed as free-range rough grazing in association with unenclosed tracts of upland, are excluded. It often occurs as an integral part of lowland heath landscapes, in parklands and locally on coastal cliffs and shingle. It is normally managed as pasture.

Acid grassland is characterised by a range of plant species such as heath bedstraw *Galium saxatile*, sheep`s-fescue *Festuca ovina*, common bent *Agrostis capillaris*, sheep`s sorrel *Rumex acetosella*, sand sedge *Carex arenaria*, wavy hair-grass *Deschampsia flexuosa*, bristle bent *Agrostis curtisii* and tormentil *Potentilla erecta*, with presence and abundance depending on community type and locality. Dwarf shrubs such as heather *Calluna vulgaris* and bilberry *Vaccinium myrtillus* can also occur but at low abundance. Lowland acid grassland often forms a mosaic with dwarf shrub heath, the latter being covered in the separate lowland heathland action plan. Acid grasslands can have a high cover of bryophytes and parched acid grassland can be rich in lichens. Acid grassland is very variable in terms of species richness and stands can range from relatively species-poor (less than 5 species per 4m<sup>2</sup>) to species-rich (in excess of 25 species per 4m<sup>2</sup>).

Lowland Dry Acid Grassland can support a wide range of plant species and is an important habitat for invertebrates. There has been a substantial decline in the resource over the last century, mainly due to agricultural intensification.

#### 1.2 Summary of existing information

##### 1.2.1 Information sources

This definition is based primarily on the UK Biodiversity Action Plan. EN Research Report 259 has information on extent, conservation interest and management of this habitat in England

A list of all documents used to compile this definition statement is included as **Appendix 1**.

## 1.2.2 Existing inventories

English Nature have produced County Grassland Inventories . Jefferson et al, 1997. ENRR 259 has information on the extent of this habitat in England.

## 1.3 Key issues with mapping and discriminating from other habitats.

- Please refer to Section 9 for instructions on dealing with relationships with other priority habitats, and Section 11 for size of mappable units.
- Areas of semi-natural or artificial habitat totally within an area of this priority habitat should be included in the polygon for this priority habitat polygon, if <0.25ha.

## 2. Physio-graphical description

### 2.1 Structural/physical components

Lowland Dry Acid Grassland is an integral part of heathland in its widest sense and often occurs in mosaic with ericaceous heath. Lowland Dry Acid Grasslands usually develop on suitable soils from clearance of woodland or bracken for pasture. Other sites are found on the heathland edge where grazing (and trampling) control heather growth, on former arable land, or stabilised sand dunes.

### 2.2 Applicability of aerial photos and other remote sensing technologies

Aerial photographs can be useful to distinguish between areas of bracken, grassland and scrub but additional information on soil type is also needed to distinguish between grassland types, which are otherwise impossible to distinguish, for example acid versus neutral. Also the degree of agricultural improvement can be difficult to discern. May be very useful in determining the local limit of agricultural enclosure.

## 3. Altitudinal limits

As for all grassland priority habitats there are difficulties in making clear separation between upland and lowland types based solely on a strict altitude limit or NVC community. The upper limit for lowland grassland types should be set as the limit of functional enclosure, which in England is usually around 300 to 350m. Functional enclosure would not generally include areas that are enclosed by dilapidated walls or fencing that allows free access to the open moor. Analysis of aerial photographs should allow a decision to be made as to whether an individual land parcel lies above or below this limit. Where there is still uncertainty, then this information should be recorded in the priority determination field attached to the polygon. All habitat parcels that may be priority grassland should, wherever possible be included in the inventory.

For Lowland acid grasslands, Sanderson gives the working definition as “ *Lowland acid grassland is generally found below 350m and does not include unenclosed rough grazing land above the moor wall*”. Upland fringe grassland are described by Sanderson as being “*often part of the same pastoral system as the nearby moors and generally have a closer ecological and land use relationship to the uplands than to the lowlands*”. Such grasslands should not be included in the Lowland dry acid grassland inventory unless they appear to be of a distinctly lowland character. See Sanderson for more information.

## 4. Habitat classification

The categories in these classifications are not totally synonymous and the comparisons below attempt to be the best approximation.

CLASSIFICATION and version date	CODE	DESCRIPTION	RELATIONSHIP *	COMMENTS
BAP priority habitat (1995)		Lowland dry acid grassland		
BAP broad habitat (1998)		Acid grassland	>	
Phase 1 (1990)	B1 B11 B12 C1 D5 D6 H6	Acid grassland Acid grassland – unimproved Acid grassland - semi-improved Bracken Dry heath/acid grassland mosaic Wet heath/acidic grassland mosaic Dune grassland	> > > > > > >	HR table also includes C1 (bracken), and does not include D5 and D6. Lowland heathland Lowland heathland Coastal sand dunes
NVC (1991)	U1 U2 U3 U4  U20a  SD10b  SD11b  SD12	<i>Agrostis-capillaris – Rumex acetosella</i> <i>Deschampsia flexuosa</i> <i>Agrostis curtisii</i> <i>Festuca ovina – Agrostis capillaris – Galium saxatile</i> <i>Pteridium aquilinum – Galium saxatile</i> community, <i>Anthoxanthum odoratum</i> sub-community <i>Carex arenaria</i> dune <i>Festuca ovina</i> subcommunity inland only <i>Carex arenaria – Cornicularia aculeata</i> dune, <i>Festuca ovina</i> subcommunity inland only <i>Carex arenaria – Festuca ovina – Agrostis capillaris</i> dune grassland	< < < <  <  <  <  <	
EUNIS	E1.7 B1.3/P-16.212 E1.1 E1.7 E1.7/P-35.11 E1.7/P-35.12 E1.7/P-35.13 E1.9/P-35.21 E1.9/P-35.22 E1.9/P-35.23 E1.9/P-64.11 E1.9/P-64.12 E1.9/P-64.2 E3.5/P-37.32 E5.3/P-31.861	Non-Mediterranean dry acid and neutral closed grassland	>	

<b>Palaeartic</b>	16.212 31.861 34.1 35.1 35.11 35.12 35.13 35.15 35.21 35.22 35.23 37.32 64.11 64.2 64.11 or 64.12x35			HR table includes following .2
<b>CORINE (1991)</b>	E3.2.1 35.1 35.11- 35.23 <b>Corine biotope types</b> 16.2121 31.861 34.1 35.1 35.11 35.12 35.13 35.15 35.21 35.22 35.23 37.32 64.11 64.2 64.1x35.2 <b>Corine land cover classes</b> 2.3.1 3.2.1 3.2.2 3.3.1	Natural grassland	>	HR table includes following: : :
<b>Annex 1 type (1999 Interpretation manual)</b>	2330	Inland dunes with open <i>Corynephorus</i> and <i>Agrostis</i> grasslands	<	
<b>IHS (2001)</b>	GAP/1	Lowland dry acid grassland	=	

\* relationship of classification type to priority habitat:  
= equal, < narrower, > wider, # overlap, ? not determined

## 5. Species composition

### 5.1 Flora

Species composition is particularly important for distinguishing Lowland Dry Acid Grassland. Characteristic species include *Agrostis capillaris*, *Agrostis curtisii*, *Deschampsia flexuosa*, *Festuca ovina*, *Galium saxatile*, *Potentilla erecta*, and *Rumex acetosella*, (U1-U4), and inland dunes with *Carex arenaria*.

Lowland Dry Acid Grassland can be extremely species rich. For example, one of the richest grassland samples recorded is in U4, with 62 species per 4m<sup>2</sup>.

See Rodwell for more details.

### 5.2 Fauna

Please see **Appendix 2** for a list of priority species associated with this habitat (from Biodiversity – Making the links, English Nature Biodiversity series).

## 6. Geographical restrictions

### 6.1 Geographical coverage and restrictions in the UK

Can be found on any free-draining, sandy soils throughout the UK.

U1 is widespread through England and Wales.

U2 is found on the Surrey heaths, the Weald and upland fringes of northern England, and extending into Scotland.

U3 is found in the SW from Cornwall to the New Forest, and in Surrey.

U4 is found in western upland, or in lowlands in areas of higher rainfall.

U20a is widespread.

SD10b is scattered around the coast, and inland in Breckland and Lincolnshire.

SD11b is mainly found on the east coast, in Breckland and Lancashire.

SD12 is scattered around the coast and inland, however probably doesn't occur inland in England.

### 6.2 Climate requirements

Rodwell, has information on climatic requirements of different NVC types.

## 7. Geology and soils

Nutrient poor, free draining soils with pH 4-5.5 (3.5-6.5) overlaying acid rocks or superficial deposits such as sands or gravels. Soils range from rankers, through brown earth and podzols.

## 8. Hydrology

Lowland Dry Acid Grassland is found on free-draining, base-poor soils. Some communities are subject to summer parching. Where the soils are damper it is due to higher precipitation

rather than impeded drainage. There is however variation in moisture status between “dry” acid grassland types from very dry U1 types to relatively moist U4 types (Sanderson).

## 9. Relationship with other habitats

	<b>Lowland dry acid grassland</b>
<b>Ancient and/or species rich hedgerows</b>	Allowable overlap. Hedges will be mapped as linear features and should not artificially sub-divide contiguous areas of lowland dry acid grassland.
<b>Coastal sand dunes</b>	Allowable overlap.
<b>Coastal vegetated shingle</b>	Allowable overlap.
<b>Lowland calcareous grassland</b>	Separate by NVC. Soil data may be useful.
<b>Lowland heathland</b>	Allowable overlap. In many cases Lowland dry acid grasslands are an integral part of Lowland heaths, and the grassland component may contribute significantly to the diversity and ecological interest of heathland sites. If the acid grassland component of a heathland polygon is estimated to be at least 0.25 ha in total, then it should be mapped in both inventories using “ <i>definitely present within polygon but not mappable</i> ” under the <i>priority determination attribute</i> . An estimate of the % of the grassland component should be entered in the <i>habitat features note</i> field. Any single area of Lowland acid grassland occurring within a heathland that is larger than 0.25 ha should be mapped in the Lowland acid grassland inventory but also included in the Lowland heath inventory.
<b>Lowland meadows</b>	Separate by NVC. Soil data may also be useful.
<b>Lowland wood-pasture and parkland</b>	Allowable overlap.
<b>Maritime cliff and slopes</b>	Allowable overlap.

## 10. Management

Lowland Dry Acid Grassland is usually managed as enclosed pasture but may be found unenclosed within heathland landscapes eg. the New Forest. Grazing is important in maintaining the grassland community; lack of grazing leads to scrub encroachment. The balance of heath / grass is influenced by the level of grazing.

## 11. Size of mappable units

**Minimum mappable unit (MMU): 0.25 ha**

Remaining fragments can be very small, however they are an important resource

## **12. Regional differences**

Please refer to Rodwell (1992) and Sanderson (1998) for details of regional variations in this habitat.

## **Appendix 1**

### **Information Sources**

Anon. (1998). UK Biodiversity group: Tranche 2 Action Plans. Volume II – terrestrial and freshwater habitats

Brown, A.E., Burn, A.J., Hopkins, J.J. and Way. S.F. (1997). The Habitats Directive: Selection of Special Areas of Conservation in the UK. Peterborough: JNCC Report No. 270.

Dargie, T.C. 1993. The distribution of lowland wet grassland in England. Peterborough: English Nature Research reports No 49. English Nature

NCC (1990). Handbook for Phase 1 habitat survey: a technique for environmental audit field manual NCC, Peterborough

English Nature (1999) Biodiversity : making the links. English Nature

EUNIS website. [[www.mrw.wallonie.be/dgrne/sibw/EUNIS/](http://www.mrw.wallonie.be/dgrne/sibw/EUNIS/)]

Jackson, D.L. (2000). Guidance on the interpretation of the Biodiversity Broad Habitat Classification (terrestrial and freshwater types): Definitions and the relationship with other habitat classifications. JNCC Report, No. 307.

Jefferson et al (1997). Inventories of lowland grassland in England: Rationale and methodology. Peterborough: English Nature Research Reports No. 215.

Rodwell, J.S. (ed) (1992). British Plant Communities. Vol. 3: Grasslands and montane communities. Cambridge University Press, Cambridge

Sanderson, N. A. (1998). A review of the extent, conservation interest and management of lowland acid grassland in England(2 volumes). English Nature Research Report No. 259..

SERC (2001) The Integrated Habitat System.

## Appendix 2

### BAP priority species associated with lowland dry acid grassland

(From "Biodiversity - Making the Links" - 28 June 2000 version)

Scientific name	Common name	Taxon	Priority list	Importance of habitat to the species *
<i>Argynnis adippe</i>	High brown fritillary	Butterfly	SAP	P
<i>Boloria euphrosyne</i>	Pearl-bordered fritillary	Butterfly	SAP	P
<i>Burhinus oedicephalus</i>	Stone curlew	Bird	SAP	P
<i>Coleophora tricolor</i>	Basil thyme case-bearer	Moth	SAP	P
<i>Dorycera graminum</i>	a picture-winged fly	Fly	SAP	P
<i>Maculinea arion</i>	Large blue	Butterfly	SAP	P
<i>Noctua orbona</i>	Lunar yellow underwing	Moth	SAP	P
<i>Psylliodes sophiae</i>	a flea beetle	Beetle	SAP	P
<i>Xylena exsoleta</i>	Sword-grass	Moth	SAP	P
<i>Anostirus castaneus</i>	a click beetle	Beetle	SAP	P?
<i>Alauda arvensis</i>	Skylark	Bird	SAP	S
<i>Asilus crabroniformis</i>	Hornet robberfly	Fly	SAP	S
<i>Caprimulgus europaeus</i>	Nightjar	Bird	SAP	S
<i>Lullula arborea</i>	Woodlark	Bird	SAP	S
<i>Poronia punctata</i>	Nail fungus	Fungi	SAP	S
<i>Triturus cristatus</i>	Great crested newt	Amphibian	SAP	S
<i>Andrena ferox</i>	a mining bee	Bee	SAP	x
<i>Andrena gravida</i>	Banded mining bee	Bee	SAP	x
<i>Aphodius niger</i>	a dung beetle	Beetle	SAP	x
<i>Arabis glabra</i>	Tower mustard	Vascular plant	SAP	x
<i>Aricia artaxerxes</i>	Northern brown argus	Butterfly	SS	x
<i>Bombus sylvarum</i>	Shrill carder bee	Bee	SAP	x
<i>Dianthus armeria</i>	Deptford pink	Vascular plant	SAP	x
<i>Formica exsecta</i>	Narrow headed ant	Ant	SAP	x
<i>Gryllus campestris</i>	Field cricket	Cricket	SAP	x
<i>Hieracium Sect Alpestris</i> (Shetland spp only)	Hawkweeds	Vascular plant	SAP	x
<i>Homonotus sanguinolentus</i>	a spider-hunting wasp	Wasp	SAP	x
<i>Leptodontium gemmascens</i>	Thatch moss	Moss	SAP	x
<i>Nomada ferruginata</i>	a cuckoo bee	Bee	SS	x
<i>Scleranthus perennis</i> ssp. <i>prostratus</i>	Perennial knawel	Vascular plant	SAP	x

\* (P) primary, (S) secondary or (x) less